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1 RECORD OF ORAL HEARING

2 UNITED STATES PATENT AND TRADEMARK OFFICE

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6 BEFORE THE BOARD OF PATENT APPEALS
7 AND INTERFERENCES

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10 *Ex parte* RUSTOM S. KANGA

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13 Appeal 2009-006927
14 Application 10/586,414
15 Technology Center 1700

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18 Oral Hearing Held: Tuesday, September 15, 2009

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22 Before JEFFREY T. SMITH, MICHAEL P. COLAIANNI, and JEFFREY
23 B. ROBERTSON, *Administrative Patent Judges*.

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25
26 ON BEHALF OF THE APPELLANTS:

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1 The above-entitled matter came on for hearing on Tuesday,
2 September 15, 2009, commencing at 9:55 a.m., at the U.S. Patent and
3 Trademark Office, 600 Dulany Street, Alexandria, Virginia, before Kevin
4 Carr, Notary Public.

5
6 JUDGE SMITH: Good morning, Mr. Cordani. Today we will
7 be creating a transcript of today's proceedings and it will become an official
8 part of the record. As you are aware, you have 20 minutes to present your
9 arguments and after you settle and you may begin.

10 MR. CORDANI: Yes, your honor. I would like to thank you
11 for allowing me your attention this morning. I'd like to make an introduction
12 to note to you a few points that I'd like to make in my argument. My first
13 point in this case is the Examiner attempted to assemble and cobble together
14 15 different references in an attempt to show obviousness with regard to the
15 claimed invention. I think that the number of references and the way in
16 which they are proposed to be assembled I think reveals the use of hindsight
17 in attempting to assemble the various elements of the claims via these 15
18 different references.

19 Secondly, the Examiner has noted that she didn't believe that
20 we opposed the combination of the three references Kanga, Fan and
21 Cushner. I would like to note to you that we do in fact believe that
22 combination is inappropriate, and I will explain to you why.

23 Three, I would like to point out to you that the fact that the use
24 of collimated light is not the same as specifying that the light hitting the

1 point of impact, especially on a curved surface, is impacting it at a 90-degree
2 angle. Obviously collimated light is parallel light rays but they can impact
3 at any angle, unless arranged specifically to contact at a perpendicular angle.

4 Four, I'd like to point out the only references that involved
5 imaging on curved surfaces, Ohba, Nellison, Kitamura, Carroll and
6 Speichner are not analogous to the claimed invention and I will explain why.

7 And five none of the references cited reveal any of the following three
8 elements; specifically none of the references reveal the use of multiple light
9 sources with collimators arranged around a curved surface in a way to
10 preserve the perpendicularity of the impact of the light. None of the
11 references reveal rotating the object during the exposure in such a way as to
12 preserve the perpendicularity of the impact of the light. And none of the
13 references reveal exposing the photopolymer through the cylinder wall in
14 order to form a floor.

15 JUDGE ROBERTSON: Counsel I'd like to stop you right here
16 before you get into your presentation.

17 MR. CORDANI: Yes your honor.

18 JUDGE ROBERTSON: You're limited at oral arguments to
19 arguments that you have made in your Brief, so to the extent that your
20 arguments are not in your Briefs, that is something that we will not consider
21 in rendering our decision.

22 MR. CORDANI: Yes your honor. I believe we have made the
23 arguments.

1 JUDGE ROBERTSON: So I might ask you as you go forward
2 to point that out to us just for clarification purposes.

3 MR. CORDANI: Yes your honor. Thank you. So the first
4 point that I would like to expound upon is the combination of 15 different
5 references. It's not reasonable to assume that the skilled artisan would
6 assemble bits and pieces from 15 references, many of which do not represent
7 commercial designs to achieve the claimed invention. Only hindsight would
8 allow such a combination. So for instance the Examiner has used the Kanga
9 reference to reveal a flat printing plate with a very thin flexible floor that is
10 exposed through the floor where the floor is doped with a
11 radiation-absorbing compound. That's the proposition that Kanga stands for.
12 She has combined that with the generic references from Fan and Cushner
13 that printing sleeves, meaning round printing plates, exist. The Appellant
14 doesn't argue about the fact that round printing plates existed at the time.
15 There is no view in that regard. What we'd like to point out is that although
16 round printing plates existed, exposing them through the tube through the
17 floor was not normally done. And it's not referenced in either Fan or
18 Cushner.

19 JUDGE ROBERTSON: Okay, could you point to where you're
20 making this argument in your brief?

21 MR. CORDANI: Can I come back to that at the end? Because
22 I'll have to go back into the Brief.

1 JUDGE ROBERTSON: Well, I think it would be useful to do
2 it now because otherwise we could get into a long discussion about
3 arguments that we won't be able to consider in rendering our decision.

4 MR. CORDANI: Okay. I have to say I don't know specifically
5 where that argument was made in the Brief so I guess I will defer that
6 argument. I will remake it later and point it out to you later if necessary.

7 Three, the Examiner has pulled the concept of an abatable layer
8 from the Fan reference, and then she has pulled the generic idea of the use of
9 collimated light and various baffles to achieve collimated light from 12
10 different references. But the references I'll show you quite honestly are not
11 applicable to the way she has attempted to combine them with the three
12 primary references. I point out to you that none of the references reveal
13 perpendicularity on a curved surface. None of the references reveal the use
14 of multiple light sources or rotation of the surface while maintaining
15 perpendicularity.

16 The second point I'd like to make is that collimation is not the
17 same as maintaining perpendicularity at the point of impact, especially on a
18 curved surface. And so as you might see from our Application the means of
19 maintaining perpendicularity at the point of impact are either to assemble a
20 variety of light sources and collimators around the surface so that at various
21 points of impact perpendicularity is either maintained or substantially
22 maintained, or using one bank of light sources with a perpendicular impact
23 and then rotating the cylinder. We believe that none of the references that
24 were cited reveal either of those solutions in maintaining perpendicularity.

1 Although the use of collimated light is known in general -- and
2 the Examiner has correctly and appropriately pointed out 12 different
3 references that you reveal collimated light in various ways -- their
4 application in this particular instance and the use of collimated light to
5 maintain perpendicularity around the surfaces of different things is not
6 revealed. For example in the Nellissen reference the Examiner points out an
7 off contact mask is used. You can see from the Nellissen reference that
8 primarily the light that is penetrating through the mask is penetrating at
9 oblique angles.

10 The purpose of collimating the light is not to maintain
11 perpendicularity with the surface, but instead is used to accurately reflect the
12 light back that needs to be reflected back from the off contact mask. If the
13 light was not collimated you wouldn't be able to accurately predict where
14 that impact is going to be after it hits the reflector. So the purpose there for
15 collimation is completely different. It has nothing to do with
16 perpendicularity to the surface. It has to do with the accuracy with which
17 you can predict the reflection from the reflector.

18 JUDGE ROBERTSON: Can I ask you about Nellissen?

19 MR. CORDANI: Yes, your honor.

20 JUDGE ROBERTSON: I think one of the things that the
21 Examiner points out is your claims require substantial perpendicularity.

22 MR. CORDANI: Yes.

23 JUDGE ROBERTSON: The Answer illustrates how some of
24 your substantial perpendicularity would be at some sort of an angle that is

1 not exactly perpendicular and sort of equates that to I guess FIG. 2 of
2 Nellissen which is a similar angle hitting the surface. So I guess what I'm
3 asking you is would not the substantial perpendicularity in your claims be
4 covered by Nellissen's angle there?

5 MR. CORDANI: I would respectfully say no.

6 JUDGE ROBERTSON: Okay.

7 MR. CORDANI: If you look at FIG. 2, the primary contact
8 angles there are deeply oblique. In my view the word substantially
9 perpendicular really has to do with -- So I said the way of achieving
10 perpendicularity is through obtaining multiple light sources and collimators
11 around the arc way surface. Maintaining theoretical perpendicularity is
12 essentially impossible because it's point by point. At every point you move
13 around the surface it's going to be off a little bit.

14 Substantial perpendicularity to me means the engineering
15 capability to be able to engineer lights around that surface with collimators
16 to achieve as close to perpendicularity as engineering can achieve. FIG. 2 in
17 Nellissen reveals that the primary angle -- And I would say two things. One
18 is most of those light rays hitting the surface are deeply oblique. They're not
19 anywhere near perpendicular. You can see the rays coming through the
20 mask, not the one single ray it happens to be getting off of the reflector;
21 most of those rays are completely oblique.

22 The second thing I would say is Nellissen in no way teaches
23 hitting the surface in a perpendicular way. The purpose here is to be able to
24 predict where that reflected ray is going to hit the surface. It's not to hit it

1 perpendicular. It's to hit it in the proper spot. And the reason for that is this
2 off-contact mask and the reflector.

3 JUDGE SMITH: Excuse me. But if the purpose is to hit the
4 target in a particular way, if you want a perpendicular wouldn't that be the
5 particular way that you want it hit the target?

6 MR. CORDANI: Not necessarily. It's not the angle that's
7 important it's the point that it's important so you're able to predict where it's
8 going to hit. I mean you can predict at any angle as long as you know the
9 angle, then you're able to predict it.

10 JUDGE SMITH: Right. Then looking at Nellissen FIG. 2 --

11 MR. CORDANI: Yes.

12 JUDGE SMITH: Just for translation purposes we'll say that it's
13 hitting approximately between 9 and 10 o'clock if you will. If you were to
14 move that back to 9 o'clock then that would be perpendicular to the target
15 correct?

16 MR. CORDANI: I guess.

17 JUDGE SMITH: I'm presuming that you're making flat planes
18 on your cylindrical target that you'd want to hit perpendicularly?

19 MR. CORDANI: I don't understand, your honor.

20 JUDGE SMITH: In other words because you're dealing with a
21 circle you have to have a flat plane if you want it to be perpendicular.

22 MR. CORDANI: If it was going to be perfectly -- or just a
23 point. A theoretical point.

24 JUDGE SMITH: Correct. So --

1 MR. CORDANI: I would direct your attention to instead to
2 FIG. 3 in Nellissen. That clearly shows you that Nellissen is not concerned
3 with the perpendicularity of the impact. You can see there that the rays there
4 are reflecting at all different angles, and that Nellissen is not proposing
5 perpendicularity. He's merely proposing to use of an off contact mask and to
6 use collimation so that he can predict the point where the various rays are
7 going to hit.

8 JUDGE SMITH: What I was taking from Nellissen and what
9 the Examiner appears to be citing it for is the precision. That's the reason
10 why you want collimation so you can predict where it's going to hit.

11 MR. CORDANI: I guess that's true except I would point out to
12 you that in our case it's not precision that matters here. In our case, if you
13 will remember, we have a mask that is intimately associated with the surface
14 of the product. So there's a mask that has already been ablated -- the only
15 areas that are going to be exposed to light. The mask is absorbing all the UV
16 radiation except in the areas where it's been ablated. The only areas that are
17 going to absorb UV light are the areas where the mask has been ablated.
18 And so accuracy of the point where the light hits it in our invention is
19 immaterial. It doesn't matter. The light can hit anywhere. If it hits in a spot
20 where it's not supposed to hit, the mask will absorb it.

21 The only place where it's going to penetrate is in the area where
22 the mask has been ablated. And so it's not the accuracy where the light is
23 hitting, because light is hitting all over the entire surface in our invention.

1 It's hitting everywhere. It's not hitting in particular spots. It hits everywhere
2 and is absorbed by the mask except for the mask has been ablated.

3 The purpose of perpendicularity in our invention is driven
4 because of the thickness of the photopolymer material around it. So you
5 want the rays to be as perpendicular as possible so that where the mask is
6 ablated the rays will go directly through and form a very straight
7 photopolymer curing, as opposed to going through, and then in the thickness
8 of the photopolymer, diverging and causing things to widen or spread.

9 JUDGE ROBERTSON: But in that regard doesn't the
10 Examiner cite a lot of this art -- and some of it appears to be cumulative in
11 nature -- but doesn't the Examiner cite a lot of this art to show that
12 collimation of light is used to produce finer image results?

13 MR. CORDANI: Actually I would take issue with that Your
14 Honor. I would say this. The primary references that she uses, for instance
15 Fan and Cushner, don't discuss collimated light at all. They use general
16 mercury arc lights that are not collimated and have no concern whatsoever
17 with collimation.

18 JUDGE ROBERTSON: Yet -- but the Examiner does not rely
19 on those references.

20 MR. CORDANI: I agree. The Plambeck reference, which he
21 does rely upon, specifically recommends the use of non-collimated light of
22 oblique rays because Plambeck is actually looking to do the opposite and
23 spread the light underneath the mask so that he gets a wider foot, and
24 therefore better strength in the photopolymers. I would argue it least that a

1 few of the references, including Plambeck specifically, teach specifically
2 against using collimated light. The collimated light sources, quite honestly,
3 which are cited by the Examiner -- let me quickly go through them. She
4 uses quite a few of them.

5 So for instance Gush. Gush is suggesting imaging a flat layer
6 of liquid photopolymer -- so this is a flat layer of liquid photopolymer -- and
7 it recommends the use of a point source or collimation. The reason why it
8 recommends it is because it has an off contact mask. Gush doesn't want to
9 put the mask on the liquid photopolymer layer because it's going to stick and
10 get contaminated. So it has an off contact mask and therefore recommends
11 collimation so that once it penetrates the mask it's not going to diverge and
12 cause problems with imaging.

13 Werber is the exact same thing is Gush. It's a flat liquid layer
14 with an off contact mask and that's why it recommends collimation.

15 Gelbart is a flat plate again. It uses collimation, actually again
16 similar to Nellissen. Gelbart uses collimation to be able to predict -- it has a
17 reflector -- and it's going to be able to predict where the light is going to be
18 hitting on the surface.

19 Ohba, which is actually one of the primary references the
20 Examiner references, is completely non-analogous. Ohba reveals use of no
21 mask at all. It's a direct-write imaging proposal where it has a scanning head
22 and it uses either a point source -- a laser -- or collimated light. And the
23 reason it uses collimated light or a point source is because there is no mask.
24 Of course he has to use a point source or collimated light because he needs

1 to predict precisely where the light is going to hit in order to directly image
2 the surface. There's no mask.

3 JUDGE ROBERTSON: I think the Examiner is relying on
4 these principles as a general principle that you can use collimated light to
5 affect a more refined result.

6 MR. CORDANI: I guess I don't argue with that proposal; the
7 fact that you can use collimated light to affect a result. But combining that
8 with the proposition, not only are you using collimated light, but you're
9 ensuring that the collimated light is hitting in a perpendicular angle is
10 another story. The references in my view don't reveal that last concept of
11 controlling the collimation so that you have uniformed perpendicularity.

12 I'll go on. Most of the references she cites, for example Karol
13 and Speicher, again these are references where the light is being reflected by,
14 in this case, a conical mirror. So of course you need to use collimated light
15 because you need to be able to predict the angle of reflection from the
16 conical mirror. And the other thing I'll point out is that when you have a
17 conical mirror there's no way of assuring that you're going to have all the
18 light reflecting back so that it hits perpendicular to the surface. It's just not
19 going to happen with a conical mirror in that case.

20 So I would suggest to you -- or my point that I would like to
21 make to you is -- that collimation is known. There's no doubt about it. The
22 Examiner points out 12 different references that reveal collimated light.
23 Collimation is known to affect the result. What's not known is the use of
24 collimation to ensure perpendicularity of the point of impact, particularly

1 when you have a curved surface. Secondly, what's not known is assembling
2 a variety of light sources and collimators around a cylindrical surface, again
3 to ensure perpendicularity or to rotate the surface to ensure perpendicularity
4 of the point of impact.

5 JUDGE ROBERTSON: Well could you address the Wier
6 reference specifically? Column 1 lines 53 through 54 or 55. Somewhere
7 around there.

8 MR. CORDANI: Hold on one second.

9 JUDGE ROBERTSON: It says, "Disclosed herein is a device
10 and method for directing the ultraviolet light perpendicularly against the
11 photopolymer plate." Now I understand that that is a flat plate.

12 MR. CORDANI: Yes.

13 JUDGE ROBERTSON: But the concept of perpendicularly
14 hitting the plate appears to be there.

15 MR. CORDANI: That is true, except it is done in a very
16 different way. And it's done in a way that wouldn't work in a cylindrical
17 device. It wouldn't work in this device. We'll put it that way. So Wier is
18 establishing the concept of using a polarizing filter. A polarizing filter is
19 placed between the photopolymer and the mask. So you have the
20 photopolymer -- a flat plate in this case -- a polarizing filter or film, and then
21 the mask on top of that. So in our case the mask -- and the claims
22 require -- that the mask be on top of and in intimate contact with the
23 photopolymer layer. So achieving what Wier has achieved is not possible in
24 the design that we that have.

1 JUDGE ROBERTSON: I'd like to ask you about that also. In
2 FIG. 4 Wier appears to show, and the Examiner points this out that the
3 polarizer is above the mask.

4 MR. CORDANI: I have to say I'm not able to comment on that
5 right now. One minute. My understanding of Wier when I read it was that
6 the polarizer was between the mask and the --

7 JUDGE ROBERTSON: Well that's one embodiment but Wier
8 also discloses another embodiment.

9 MR. CORDANI: No. So in FIG. 4 from what I'm reading here
10 described in column 3, lines 40 to 45, what's below the polarizer is not a
11 mask. It's a translucent film.

12 JUDGE ROBERTSON: Okay.

13 MR. CORDANI: So I guess I would respectively suggest that
14 for now I don't agree. And so I guess what I would like to come back
15 around with is the Examiner has combined various references and in our
16 view there are a few things that aren't revealed that's not reasonable to
17 assume. The back exposure through the wall of the cylindrical tube is not
18 disclosed and is not suggested by the references she cites.

19 2) Again I go back to the idea that using collimated light in
20 such a way on a curved surface to maintain perpendicularity I don't believe
21 is disclosed in the method and way in which we do it. It's not suggested
22 either.

23 3) I would say that the arrangement of light sources and
24 polarizer's around the cylindrical surface is not disclosed or suggested so as

1 to maintain perpendicularity or the rotation in the alternative. And lastly I
2 would say that the references -- I guess lastly I'd like to sort of go back into
3 the Examiner's mind. As she has pointed out -- Could you tell me how much
4 time I have left?

5 JUDGE SMITH: You have about three minutes.

6 MR. CORDANI: Three minutes. Very good. I'll finish. I'm
7 sorry. So I'd like to say that those attributes are not disclosed. And so in
8 particular, even if you were to determine that perpendicularity was disclosed
9 or suggested, which I don't think it was, clearly be deep in the claims that
10 reveal this arrangement of light sources and polarizer's around the surface is
11 not disclosed.

12 Secondly, the rotation concept, which is in the dependent
13 claims, is not disclosed. Third, I would suggest that the combination of
14 being able to back expose through the wall with the perpendicularity and the
15 light sources arranged around it is not disclosed, and it is not reasonable
16 assemble all those concepts from various references. It's just not reasonable.
17 This product is not a commercial product. Although these references have
18 been out there for a long time, it's not come to commercialization this
19 concept that we've proposed. He just doesn't seem reasonable to me to look
20 at 15 references and pick bits and pieces from various parts of them
21 essentially guided by the claims, and that's what I believe happened here. So
22 with that I'll close. Unless you have any further questions, I'll thank you.

23 JUDGE SMITH: No further questions.

24 MR. CORDANI: Thank you your honors.

JUDGE SMITH: The case is submitted.

Whereupon, at 10:25 a.m., the proceedings were concluded.